

App. No. 10/500,736  
Amendment dated December 30, 2005  
Reply to Office action of August 31, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the present application.

**Listing of Claims:**

**Claim 1 (currently amended):** For heating operations in semiconductor manufacturing equipment, a ceramic susceptor comprising:  
a ceramic substrate defining a wafer-support side and being processed so that when the susceptor is not heating, along the susceptor thickness the difference between ~~[[the]]~~ a maximum outer diameter and ~~[[the]]~~ a minimum outer diameter in an arbitrary plane is 0.8% or less of the average outer diameter along the susceptor wafer-support side; and

a resistive heating element provided either on a surface of or inside said ceramic substrate.

**Claim 2 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 1, wherein the ceramic substrate is made of at least one ceramic selected from aluminum nitride, silicon nitride, aluminum oxynitride, and silicon carbide.

**Claim 3 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 1, wherein the resistive heating element is made from at least one metal selected from tungsten, molybdenum, platinum, palladium, silver, nickel, and chrome.

**Claim 4 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 1, wherein a plasma electrode is further disposed on a surface of or inside the ceramic substrate.

App. No. 10/500,736  
Amendment dated December 30, 2005  
Reply to Office action of August 31, 2005

**Claim 5 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 2, wherein the resistive heating element is made from at least one metal selected from tungsten, molybdenum, platinum, palladium, silver, nickel, and chrome.

**Claim 6 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 2, wherein a plasma electrode is further disposed on a surface of or inside the ceramic substrate.

**Claim 7 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 3, wherein a plasma electrode is further disposed on a surface of or inside the ceramic substrate.

**Claim 8 (original):** A ceramic susceptor for semiconductor manufacturing equipment as set forth in claim 5, wherein a plasma electrode is further disposed on a surface of or inside the ceramic substrate.

**Claim 9 (new):** A ceramic susceptor for heating a semiconductor wafer, the ceramic susceptor comprising:

a substantially disk shaped ceramic substrate having minimal eccentricity such that a difference between maximum and minimum outer diameters is less than 0.8 percent of an average outer diameter of the substrate;

a resistive heating element disposed either on a surface of or inside said substrate.

**Claim 10 (new):** A ceramic susceptor as set forth in claim 9, wherein the substrate includes (i) first and second opposing faces and (ii) a side face about a periphery of the substrate, the side face being sufficiently perpendicular with each of the first and second opposing faces such that the difference between the maximum

App. No. 10/500,736  
Amendment dated December 30, 2005  
Reply to Office action of August 31, 2005

and minimum outer diameters is less than 0.8 percent of the average outer diameter of the substrate through the thickness of the substrate.

**Claim 11 (new):** A ceramic susceptor as set forth in claim 9, wherein the difference between the maximum and minimum outer diameters is less than 0.3 percent of the average outer diameter of the substrate.

**Claim 12 (new):** A ceramic susceptor as set forth in claim 9, wherein:  
a thermal conductivity of the substrate is greater than 100 W/mK; and  
the difference between the maximum and minimum outer diameters being less than 0.8 percent of the average outer diameter of the substrate results a temperature uniformity of a wafer-carrying surface of the substrate being within  $\pm 0.5$  percent.

**Claim 13 (new):** A ceramic susceptor as set forth in claim 9, wherein:  
a thermal conductivity of the substrate is in a range from 10 to 100 W/mK; and  
the difference between the maximum and minimum outer diameters being less than 0.8 percent of the average outer diameter of the substrate results a temperature uniformity of a wafer-carrying surface of the substrate being within  $\pm 1$  percent.